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Levinson JC-1 Versus Fidelity Research FRT-3: A Comparison

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Of all the many different stereo components, the moving-coil cartridge and its associated signal boosters must be one of the most esoteric. Unlike most other components, it is difficult to get information, much less comparative test reports, on these devices. Only recently—most notably in The Absolute Sound and in Audio—has any real testing been reported for the newer models of moving-coil cartridges and boosters.

Thus when I decided to replace a Shure V-15 Type III with a moving-coil system, I found it difficult to decide what system I should get. The cartridge was reasonably easy to choose; I settled on the Supex SD-900E, a comparatively lightweight moving-coil device with smooth highs and really solid bass.

However, choosing the booster—either a pre-preamp or a transformer—was very difficult. I could find no useful comparative tests in the literature, and everyone's advice sounded like 90% opinion. Therefore, with the aid of a sympathetic dealer (Jonas Miller Sound in Los Angeles), I performed a comparative test of my own. I borrowed a Fidelity Research FRT-3 transformer and a Levinson JC-1 pre-preamp and used them both at home for several days. These two boosters were chosen because both are well regarded for their types. The FRT-3 is a small, well-shielded cube containing two toroidally wound transformers (one per channel). The front of the cube has a three-position switch with two impedance settings (10 ohms and 30 ohms) plus a bypass position. The JC-1 is a solid-state amplifier powered by two D cells. It is packaged in a moderately well-shielded black metal box with an on/off/battery-test switch on one side. (See article in The Absolute Sound, Vol. 1, No. 4, pp. 210-212.)

Since I have only one turntable and one preamp, the test was arranged so that one channel from the cartridge went to the FRT-3 and then into the phono 1 input of the preamp. The other channel went to the JC-1 and then into the phono 2 preamp input. The preamp, an SAE 1B, was set to its L + R mode. An A-B comparison was thus possible by switching between the two phono inputs. (Both devices were grounded, since both were quieter that way.) Before any listening tests were conducted, a frequency sweep record was used to equalize the devices to give reasonably flat frequency response in the listening area. A single set of equalizer settings worked well for both devices.

In the listening tests, I chose records that contain primarily solo artists or small ensembles with minimal differences between the right and left channel material. Even so, the channels to the two devices were frequently switched and occasionally both channels from one device or the other were connected to see if the sonic lineage changed with full-scale operation. It did not. Most of the critical listening was performed using the Acoustic Research disc, "The Sound of Musical Instruments" (AR-1) pressed by Ensayo. This record was ideally suited to the test.

The listening sessions led me to the conclusion that the JC-1 was the better device for my system. The sound quality of both devices was very clean, with good bass and airy highs, and both devices seemed to have equal detail through most of the audible range. However, the JC-1 had something more: when listening, especially to the AR disc, my friends and I all noticed that the JC-1 produced a sound with far greater ambience, resulting in far better three-dimensional sonic imaging. By contrast, the FRT-3's sound was flat and two-dimensional, although very detailed and seemingly wide-ranging. At first we suspected that perhaps this was a loudness effect due to the lower gain of the FRT-3, but increasing the gain when switching to the FRT-3 did not restore the missing dimension.

On only one occasion did the FRT-3 sound better than the JC-1, and curiously that was on the solo soprano cut of the AR disc. For this one cut, the tables were completely turned, with the JC-1 sounding flat and two-dimensional while the FRT-3 yielded a fine three-dimensional sonic image. Of course, both devices continued to sound smooth and detailed, but in this one case the sense of depth was clearly there with the FRT-3 while with the JC-1 it clearly was not.

Intuitively, I feel that the difference must have been due, at least in part, to a difference in the infrasonic performance of the two devices, but I could not prove this in my tests. I can say only that the JC-1 sounded better and I chose it for my system.

Author's Note

This article was written before the article by Foster and Leonard appeared in the January 1976 BAS Speaker. Although my tests were not as technically detailed as theirs, I do, in general, agree with Foster and Leonard, but I have chosen the Supex over the Shure V-15 Type III because to my ears the Supex sounds significantly better, and the difference is apparently greater than that found by Foster and Leonard. Of course, this does not contradict their conclusion, since I am speaking of my individual case.

As an example, while playing the AR disc, the V-15 sounded "correct" (i.e., almost true to life) on only a few cuts, while the Supex sounded "correct" on almost all the cuts. In addition, the Supex required less equalization to give a nearly flat frequency response in my listening room.

I disagree somewhat with Foster's and Leonard's statement that the difference between the pre-preamp and the transformer can be explained solely on the basis of frequency response differences. I tried bass-boosting the transformer in direct A-B comparison with the JC-1, but met with little success. I do not, however, have any alternative explanation for the difference in sound. Also, I did not feel that the Supex/JC-1 was less transparent than the Supex/FRT-3. In fact, I felt that if anything the reverse was true. All differences were really quite small. I have also never found the Supex to accentuate surface noise, and I have not had any hum problems with my Supex, although I did notice that the FRT-3 was quieter than the JC-1 at very high gain settings.

Incidentally, all the above comments apply also to the Supex SD-900 Super, which I am now using instead of the SD-900E. The Super is 20% lighter than the SD-900E, with slightly tighter bass and smoother highs.

To conclude, let me state, in deference to Shanefield, Sprague, et al., that this A-B test leaves something to be desired, but I arrived at a definite conclusion for my situation and my system, and that is sufficient for me.

Additional Comment—Ira Leonard

I agree with some of Seto's comments, but perhaps some additional description of the test method used by Al Foster and me is called for .

Our first test limitation was that we used only one sample of each cartridge, transformer, and pre-preamp. Second, we used only one type of test record for the frequency response measurements, although other records were used for additional tests (e.g., tracking).

It is well known that all magnets, but especially the high-permeability types used in cartridges and transformers, can be affected by both thermal and mechanical shocks. Great variability seems to exist among different samples of both moving-coil cartridges and transformers, and such shocks may be the cause—in addition to manufacturing variants, since both devices are handmade. We must remember that these items are shipped halfway around the world before we get them.

As for the frequency response, and in particular the high-frequency peak of the Supex, many dealers and serious listeners have given various explanations of where the peak comes from and whether or not it is supposed to be present in a good unit. In our tests, the big advantage of the JC-1AC over the transformer was its ability to provide switch-selectable amounts of high-frequency attenuation. We used the maximum attenuation setting in our tests.

The JC-1 used by Seto lacks this option. (It is also reputed to be slew-rate-limited.) The JC-1 has been superseded in the product line by the JC-1DC, which is slightly inferior to the JC-1AC but much better than the JC-1 that it replaces.

As for the test record, I should note that many people have measured differences between such records, even when all were intended to provide quantitative frequency response data. It is rumored that the one we used is not perfect, but it is useful for comparisons between components, and it is as good as any available on the market.

All subjective hi-fi testing is performed by people, and all people have personal tastes and priorities. In our listening tests, we had conflicting feelings about the results—before, during, and after the tests.

One of us (Foster) has developed the opinion that many of the differences we heard were strictly due to aberrations in frequency response. He has done much testing and listening with the Shure V-15 HI and is familiar with its performance. He is also concerned with cost-versus-performance tradeoffs. He enjoyed the sound of the Supex, but required convincing to prove that the sound was not caused primarily by a frequency response difference. I, on the other hand, already owned the Supex and transformer, and thus had a stake in hoping it tested superior. He had used the Shure III for over a year and liked it, but had found the sound sterile, veiled (or non-open), and dimensionally (front to back) very flat. In spite of the measured frequency response, I still felt that the sound of the Supex was superior. (I did use my tone controls to remove the high-frequency peak.)

In the end, both opinions were expressed in the article, both rather conservatively. Let the readers listen for themselves and then decide.

Since the reported session, I have compared the same Supex and transformer with a Denon, although using a different listening system and environment. The high-end rise in the Supex was still audible and the Denon sounded a little smoother, but both cartridges sounded very good, maintaining the superior qualities first heard in the comparison with the Shure. There was no obvious difference to me in stereo imagery or dimensionality, but both were far superior to the Shure.